

LISTING THE CLAIMS

This listing of claims is provided for the convenience of the Examiner. No amendments are made.

1-19 (canceled)

20. (previously presented) An apparatus for locating an insulation fault on a cable including a conductor carrying a current, the cable being at least partially submerged in a liquid, the apparatus comprising:

at least one voltage probe adapted to be positioned adjacent the cable and displaced along the cable whereby the liquid conducts at least a portion of the current between the probe and an insulation fault on the cable; and

a voltage comparator electrically connected to the at least one voltage probe for detecting an insulation fault when the voltage probe is positioned adjacent the fault.

21. (previously presented) The apparatus of claim 20, further comprising a body holding the at least one voltage probe, the body being adapted to at least partially surround a transverse section of the cable.

22. (previously presented) The apparatus of claim 21, wherein the at least one voltage probe comprises a plurality of voltage probes angularly spaced around the transverse section of the cable.

23. (previously presented) The apparatus of claim 21, wherein the conductor is an optical fiber cable having a cable locating conductor, and the body is adapted to at least partially surround a transverse section of the fiber optic cable.

24. (previously presented) The apparatus of claim 20, wherein the at least one voltage probe presents a conductive surface facing the cable.

25. (previously presented) The apparatus of claim 20, wherein the liquid is groundwater.

26. (previously presented) An apparatus for locating an insulation fault on a cable including a conductor carrying a current, the apparatus comprising:

at least one voltage probe adapted to be positioned adjacent the cable to establish electrical continuity with the cable, and to be displaced along the cable;
a voltage source for applying between approximately 80 and 100 volts to the conductor;
and

a voltage comparator electrically connected to the at least one voltage probe for detecting an insulation fault when the voltage probe is positioned adjacent the fault.

27. (previously presented) The apparatus of claim 26, wherein the voltage source applies an AC cable locating tone.

28. (previously presented) The apparatus of claim 27, wherein the AC cable locating tone is between approximately 220 and 440 Hz..

29. (previously presented) The apparatus of claim 26, wherein the voltage source applies a DC cable locating tone.

30. (previously presented) The apparatus of claim 26, further comprising a body holding the at least one voltage probe, the body being adapted to at least partially surround a transverse section of the cable.

31. (previously presented) The apparatus of claim 30, wherein the at least one voltage probe comprises a plurality of voltage probes angularly spaced around the transverse section of the cable.

32. (previously presented) The apparatus of claim 26, wherein the cable is an optical fiber cable having a cable locating conductor, and the voltage source applies the voltage to the cable locating conductor.

33. (previously presented) The apparatus of claim 26, wherein the at least one voltage probe presents a conductive surface facing the cable.

34. (previously presented) A method for locating an insulation fault on a cable at least partially submerged in a liquid, the cable carrying a current in a conductor, the method comprising the steps of:

positioning a voltage probe adjacent the cable, whereby the liquid conducts at least a portion of the current between the probe and an insulation fault on the cable;

measuring a voltage at the voltage probe; and

based on the voltage, detecting the fault at a position of the voltage probe along the cable.

35. (previously presented) The method of claim 34, wherein the liquid is water.

36. (previously presented) The method of claim 34, wherein the voltage probe comprises a plurality of conductive surfaces facing the cable.

37. (previously presented) The method of claim 34, wherein the step of positioning a voltage probe adjacent the cable includes at least partially surrounding the cable with the voltage probe.

38. (previously presented) The method of claim 34, further comprising the step of applying a voltage between approximately 80 and 100 volts to the conductor of the cable

39. (previously presented) The method of claim 34, further comprising the step of sounding an alarm when the fault is detected.

40. (previously presented) The method of claim 34, wherein the cable is a fiber optic cable and the current is a cable locating current.

41. (previously presented) The method of claim 40, further comprising the step of initially determining an approximate position of the fault by determining a position along the cable where an above-ground detectability of the cable locating current degrades.

42. (previously presented) A method for locating an insulation fault on a cable including a conductor carrying a current, comprising the steps of:

applying a voltage source of between approximately 80 and 100 volts to the conductor;
displacing a voltage probe along the cable while maintaining it adjacent the cable for probing voltages at single positions on the cable; and
detecting an insulation fault at a position of the probe on the cable by monitoring a voltage at the probe.

43. (previously presented) The method of claim 42, wherein the step of applying a voltage source comprises applying an AC cable locating tone.

44. (previously presented) The method of claim 43, wherein the AC cable locating tone is between approximately 220 and 440 Hz..

45. (previously presented) The method of claim 42, wherein the step of applying a voltage source comprises applying a DC cable locating tone.

46. (previously presented) The method of claim 42, wherein the cable is an optical fiber cable having a cable locating conductor, and the step of applying a voltage source comprises applying the voltage to the cable locating conductor.